# FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

**December 6 to December 12, 2015 (Week 49)**

## Overall Summary

- Influenza activity in Canada increased from week 48 but overall remains low.
- Laboratory detections of influenza are below expected levels for this time of the year.
- Four new laboratory confirmed outbreaks were reported in week 49, two were in long-term care facilities.
- So far this season, influenza A(H3N2) has been the most common subtype affecting Canadians.
- To date, the majority of influenza laboratory detections and hospitalizations have been in seniors greater than 65 years of age.
- For more information on the flu, see our Flu(influenza) web page.

**Are you a primary health care practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel for the 2015-16 influenza season? Contact us at FluWatch@phac-aspc.gc.ca**

## Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 49, 20 regions across Canada reported influenza/ILI (up from 15 regions in week 48). The majority of regions across Canada reported no activity (33), 19 regions reported sporadic activity and one region reported localized activity in week 49. Overall, low flu activity was reported across the country.

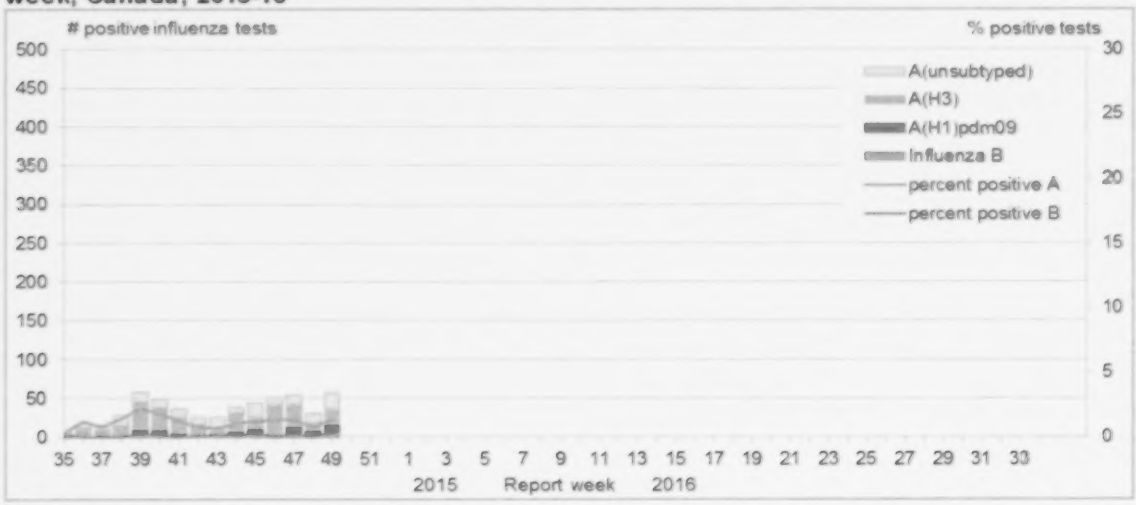
**Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 49**

Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

## Laboratory Confirmed Influenza Detections

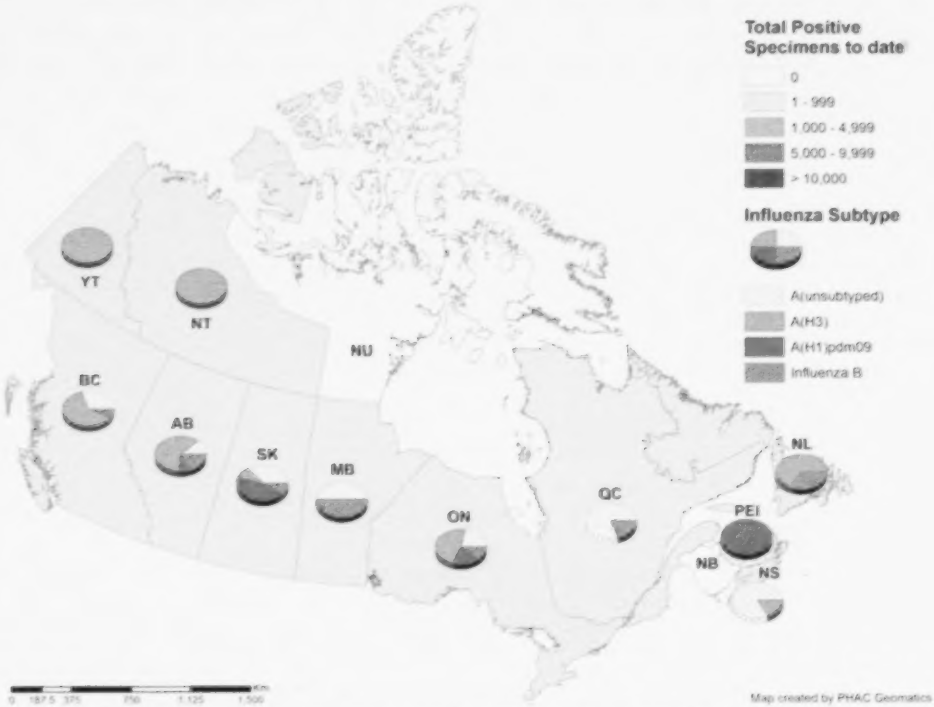
The percent positive for influenza detections increased from 0.88% in week 48 to 1.56% in week 49. Compared to the previous five seasons, the percent positive (1.56%) reported in week 49 was below the five year average for that week and below expected levels (range 4.75%-17.21%%).

**Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2015-16**




In week 49, there were 57 laboratory detections of influenza reported (up from 27 detections reported in week 48). To date, 90% of influenza detections have been influenza A and the majority of those subtyped have been A(H3) [(83% (268/321)].

**Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province, Canada, 2015-16**




Note: Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Cumulative data include updates to previous weeks.

Among influenza cases with reported age, the largest proportion was in those ≥65 years of age (45%) (Table 1).

**Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2015-16**

| Age groups (years) | Weekly (December 6 to December 12, 2015) | | | | | Cumulative (August 30, 2015 to December 12, 2015) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A | | | | B | Influenza A and B | |
| | A Total | A(H1) pdm09 | A(H3) | A (UnS)[3] | Total | A Total | A(H1) pdm09 | A(H3) | A (UnS)[3] | Total | # | % |
| <5 | 5 | 0 | 2 | 3 | 1 | 25 | 3 | 16 | 6 | 9 | 34 | 8.0% |
| 5-19 | 1 | 0 | 1 | 0 | 1 | 27 | 4 | 18 | 5 | 13 | 40 | 9.4% |
| 20-44 | 4 | 0 | 0 | 4 | 1 | 53 | 6 | 27 | 20 | 7 | 60 | 14.2% |
| 45-64 | 4 | 1 | 0 | 3 | 1 | 88 | 16 | 52 | 20 | 9 | 97 | 22.9% |
| 65+ | 9 | 0 | 5 | 4 | 0 | 182 | 5 | 124 | 53 | 8 | 190 | 44.8% |
| Unknown | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 1 | 3 | 0.7% |
| Total | 23 | 1 | 8 | 14 | 4 | 377 | 35 | 238 | 104 | 47 | 424 | 100.0% |
| Percentage[2] | 85.2% | 4.3% | 34.8% | 60.9% | 14.8% | 88.9% | 9.3% | 63.1% | 27.6% | 11.1% | | |

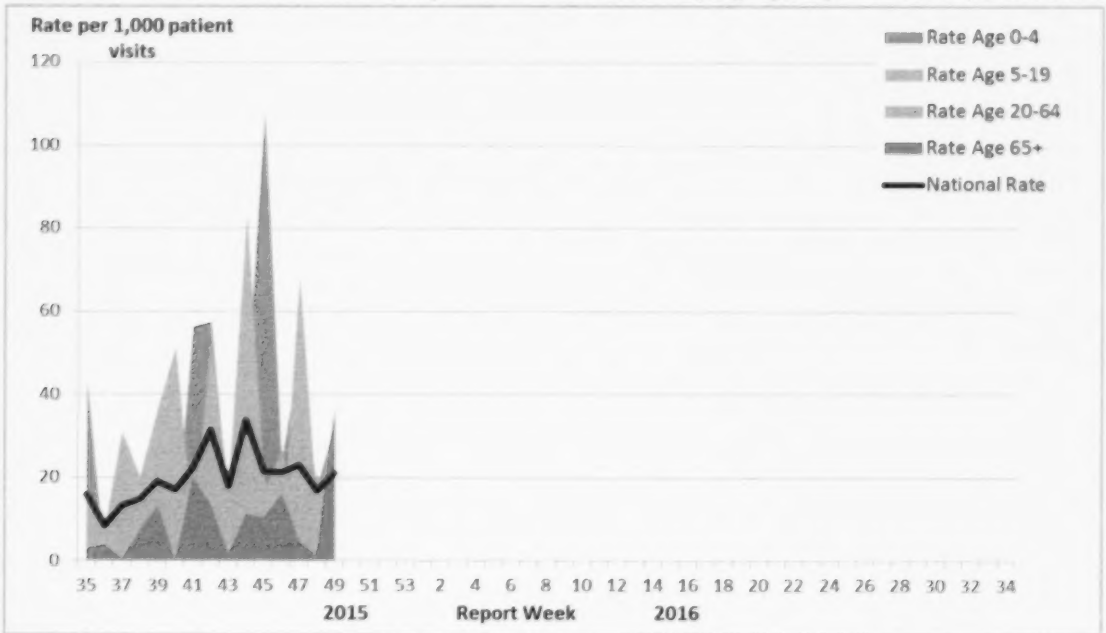
[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.

For additional data on other respiratory virus detections see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada website.

## Influenza-like Illness Consultation Rate

The national ILI consultation rate increased from the previous week. In week 49, the ILI consultation rate was 21.0 per 1,000 patient visits compared to 16.7 per 1,000 patient visits in week 48. In week 49, the highest ILI consultation rate (37.2 per 1,000) visits was found in those >65yrs of age and the lowest (13.1 per 1,000) was found in the 20-64 year group (Figure 4).

**Figure 4 – Influenza-like illness (ILI) consultation rates by age group and week, Canada, 2015-16**

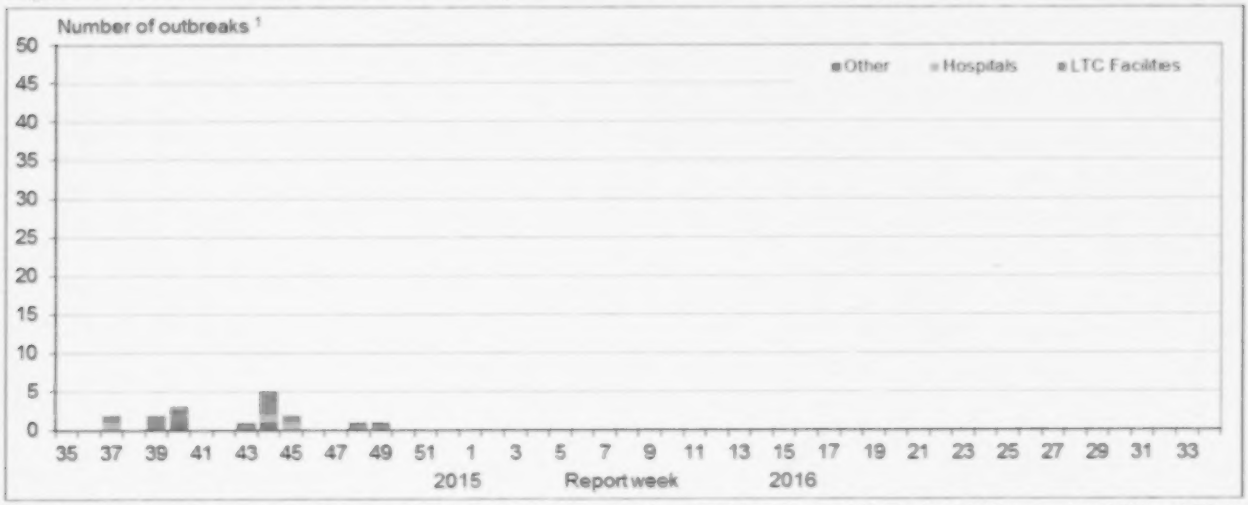



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

## Influenza Outbreak Surveillance

In week 49, there was 1 new laboratory confirmed outbreak reported. An additional outbreak of ILI was reported in a school. To date this season, 26 outbreaks have been reported (13 of which occurred in LTCFs). Last year at this time, 95 outbreaks were reported (84 of which occurred in LTCFs).

**Figure 5 – Overall number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2015-2016**




[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions. Outbreak definitions are included at the end of the report.

## Sentinel Hospital Influenza Surveillance

### Paediatric Influenza Hospitalizations and Deaths

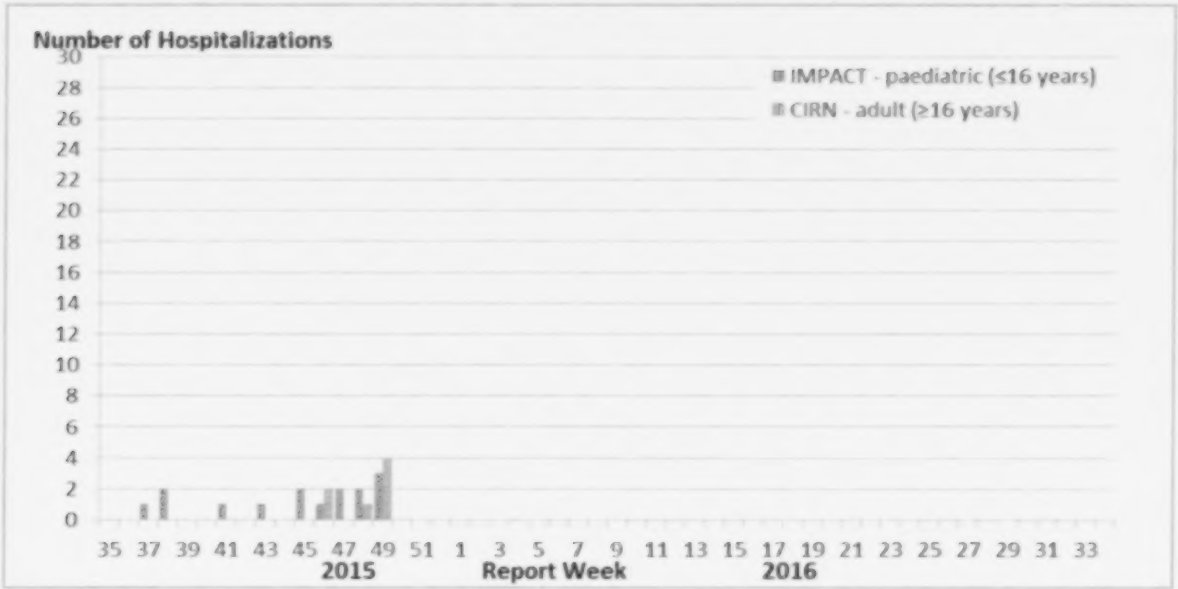
To date this season, 15 laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations have been reported by the Immunization Monitoring Program Active (IMPACT) network. Twelve hospitalized cases were due to influenza A and three cases were due to influenza B. Additionally, not shown in the table, a total of two cases were due to co-infections of influenza A and B. To date, less than five intensive care unit (ICU) admissions have been reported.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

**Table 2 – Cumulative numbers of peadiatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, Canada, 2015-16**

| Age Groups | Cumulative (30 Aug. 2015 to Dec. 12 2015) | | | | |
|---|---|---|---|---|---|
| | Influenza A | | | | Influenza B |
| | A Total | A(H1) pdm09 | A(H3) | A (UnS) | B Total |
| 0-5m | <5 | 0 | <5 | <5 | 0 |
| 6-23m | <5 | 0 | <5 | <5 | 0 |
| 2-4y | <5 | 0 | 0 | <5 | <5 |
| 5-9y | <5 | 0 | 0 | <5 | <5 |
| 10-16y | <5 | 0 | 0 | <5 | 0 |

**Figure 6 – Number of cases of influenza reported by sentinel hospital networks, by week, Canada, 2015-16, paediatric and adult hospitalizations (≤16 years of age, IMPACT; ≥16 years of age, CIRN-SOS)**




**Adult Influenza Hospitalizations and Deaths**

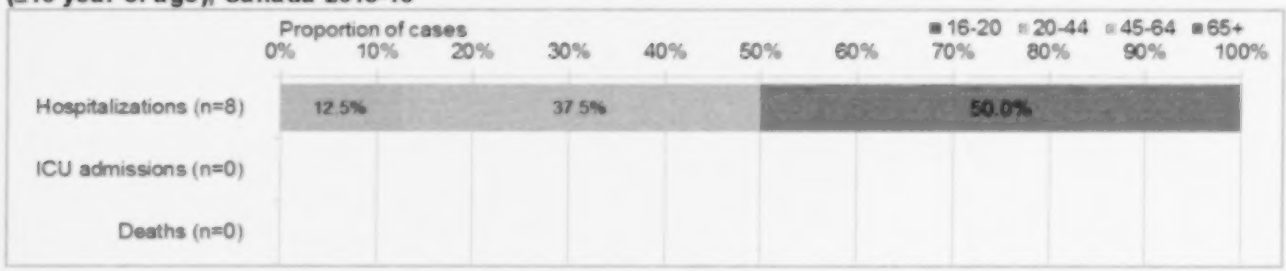
To date this season, eight laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations have been reported by the Canadian Immunization Research Network Serious Outcome Sutveillance (CIRN-SOS). The majority of hospitalized cases were due to influenza A. To date, no intensive care unit (ICU) admissions or deaths have been reported.

Note: The number of hospitalizations reported through CIRN-SOS represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

**Table 3 – Cumulative numbers of adult hospitalizations (≥16 years of age) with influenza reported by the CIRN-SOS, Canada, 2015-16**

| Age groups (years) | Cumulative (1 Nov. 2015 to 12 Dec. 2015) | | | | | |
|---|---|---|---|---|---|---|
| | Influenza A | | | | B | Influenza A and B |
| | A Total | A(H1) pdm09 | A(H3) | A(UnS) | Total | # (%) |
| 16-20 | 0 | 0 | 0 | 0 | 0 | 0 (%) |
| 20-44 | 1 | 0 | 0 | 1 | 0 | 1 (13%) |
| 45-64 | 2 | 0 | 1 | 1 | 1 | 3 (38%) |
| 65+ | 4 | 0 | 3 | 1 | 0 | 4 (50%) |
| Total | 7 | 0 | 4 | 3 | 1 | 8 |
| % | 88% | 0% | 57% | 43% | 13% | 100% |

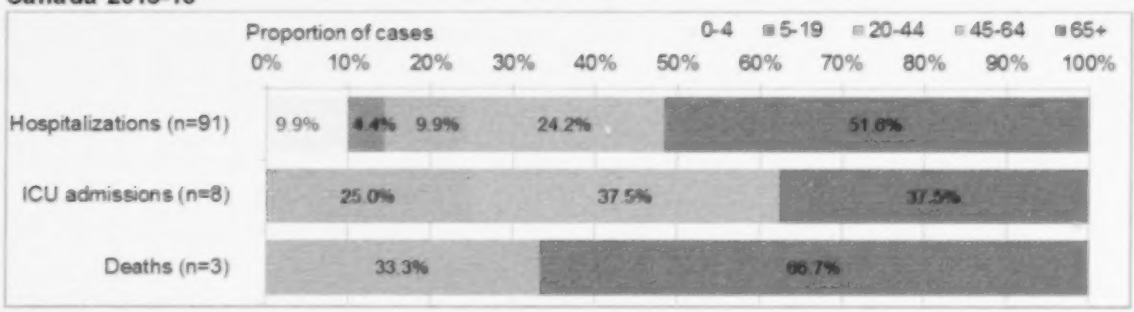
**Figure 7 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group (≥16 year of age), Canada 2015-16**




## Provincial/Territorial Influenza Hospitalizations and Deaths

Since the start of the 2015-16 season, 91 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*; all but nine with influenza A. Among cases for which the subtype of influenza A was reported, 73% (33/45) were A(H3). The majority (52%) of patients were ≥65 years of age. Eight ICU admissions and three deaths have been reported. All reported ICU admissions and deaths were in adults. Last year, in week 49, a total of 312 hospitalizations were reported by participating provinces and territories.

**Figure 8 – Percentage of hospitalizations, ICU admissions and deaths with influenza reported by age-group, Canada 2015-16**




* Note: Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not distinguished among hospital admissions reported from Ontario. Data may also include cases reported by the IMPACT and CIRN-SOS networks. The number of new influenza-associated hospitalizations and deaths reported for the current week may include cases from Ontario that occurred in previous weeks, as a result of retrospective updates to the cumulative total. It is important to note that the hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

See additional data on Reported Influenza Hospitalizations and Deaths in Canada: 2011-12 to 2015-16 on the Public Health Agency of Canada website.

## Influenza Strain Characterizations

During the 2015-16 influenza season, the National Microbiology Laboratory (NML) has characterized 91 influenza viruses [54 A(H3N2), 16 A(H1N1) and 21 influenza B].

**Influenza A (H3N2):** When tested by hemagglutination inhibition (HI) assays, six H3N2 virus were antigenically characterized as A/Switzerland/9715293/2013-like using antiserum raised against cell-propagated A/Switzerland/9715293/2013.

Sequence analysis was done on 48 H3N2 viruses. All viruses belonged to a genetic group for which most viruses were antigenically related to A/Switzerland/9715293/2013.

A/Switzerland/9715293/2013 is the A(H3N2) component of the 2015-16 Northern Hemisphere's vaccine.

**Influenza A (H1N1):** Sixteen H1N1 virus characterized were antigenically similar to A/California/7/2009, the A(H1N1) component of the 2015-16 influenza vaccine.

**Influenza B:** Fourteen influenza B viruses characterized were antigenically similar to the vaccine strain B/Phuket/3073/2013. Seven influenza B virus was characterized as B/Brisbane/60/2008-like, one of the influenza B components of the 2015-16 Northern Hemisphere quadrivalent influenza vaccine.

The recommended components for the 2015-2016 northern hemisphere trivalent influenza vaccine include: an A/California/7/2009(H1N1)pdm09-like virus, an /Switzerland/9715293/2013(H3N2)-like virus, and a B/Phuket/3073/2013 -like virus (Yamagata lineage). For quadrivalent vaccines, the addition of a B/Brisbane/60/2008-like virus (Victoria lineage) is recommended.

The NML receives a proportion of the number of influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Characterization data reflect the results of haemagglutination inhibition testing compared to the reference influenza strains recommended by WHO.

## Antiviral Resistance

During the 2015-16 season, the National Microbiology Laboratory (NML) has tested 102 influenza viruses for resistance to oseltamivir and 101 influenza viruses for resistance to zanamivir. All viruses were sensitive to zanamivir and oseltamivir. A total of 82 influenza A viruses (99%) were resistant to amantadine. (Table 4).

**Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2015-16**

| Virus type and subtype | Oseltamivir | | Zanamivir | | Amantadine | |
|---|---|---|---|---|---|---|
| | # tested | # resistant (%) | # tested | # resistant (%) | # tested | # resistant (%) |
| A (H3N2) | 65 | 0 | 64 | 0 | 68 | 67 (98.5%) |
| A (H1N1) | 16 | 0 | 16 | 0 | 15 | 15 (100%) |
| B | 21 | 0 | 21 | 0 | NA[1] | NA[1] |
| TOTAL | 102 | 0 | 101 | 0 | 83 | 82 |

[1]NA: Not Applicable

## International Influenza Reports

*World Health Organization influenza update*
*World Health Organization FluNet*
*WHO Influenza at the human-animal interface*
*Centers for Disease Control and Prevention seasonal influenza report*
*European Centre for Disease Prevention and Control - epidemiological data*
*South Africa Influenza surveillance report*
*New Zealand Public Health Surveillance*
*Australia Influenza Report*
*Pan-American Health Organization Influenza Situation Report*

**FluWatch Definitions for the 2015-2016 Season**

**Abbreviations**: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

**Influenza-like-illness (ILI)**: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

**ILI/influenza outbreaks**

**Schools:** Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

**Hospitals and residential institutions:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

**Workplace:** Greater than 10% absenteeism on any day which is most likely due to ILI.

**Other settings:** two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

*Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.*

**Influenza/ILI Activity Levels**

**1 = No activity:** no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

**2 = Sporadic:** sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

**3 = Localized:** (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

**4 = Widespread:** (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

*Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.*

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

*† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.*

*We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.*

This report is available on the Government of Canada Influenza webpage under Weekly influenza reports.

Ce rapport est disponible dans les deux langues officielles.